

## CLAIMS:

1. A polymeric composition comprising coupled AB diblocks, where A is a polyester unit derived from the polymerization of monomers selected from the group consisting of lactic acid, lactide, glycolic acid, glycolide,  $\beta$ -propiolactone,  $\epsilon$ -caprolactone,  $\delta$ -glutarolactone,  $\delta$ -valerolactone,  $\beta$ -butyrolactone, pivalolactone,  $\alpha,\alpha$ -diethylpropiolactone, ethylene carbonate, trimethylene carbonate,  $\gamma$ -butyrolactone, p-dioxanone, 1,4-dioxepan-2-one, 3-methyl-1,4-dioxane-2,5-dione, 3,3,-dimethyl-1-4-dioxane-2,5-dione, cyclic esters of  $\alpha$ -hydroxybutyric acid,  $\alpha$ -hydroxyvaleric acid,  $\alpha$ -hydroxyisovaleric acid,  $\alpha$ -hydroxycaproic acid,  $\alpha$ -hydroxy- $\alpha$ -ethylbutyric acid,  $\alpha$ -hydroxyisocaproic acid,  $\alpha$ -hydroxy- $\alpha$ -methyl valeric acid,  $\alpha$ -hydroxyheptanoic acid,  $\alpha$ -hydroxystearic acid,  $\alpha$ -hydroxylignoceric acid, salicylic acid and mixtures, thereof and B is derived from a hydroxyl, amine or carboxylic terminated compound end-capped with a non-reactive group, said hydroxyl, amine or carboxyl terminated compound initiating the polymerization of said monomers to form said polyester unit, said AB diblock being further reacted with one or more coupling agents or crosslinking agents to produce di-diblocks, multi-blocks, star-like polymers and comb-like polymers.

2. The composition according to claim 1 wherein said non-reactive group is an alkyl, aryl, aralkyl, substituted alkyl, substituted aryl, substituted aralkyl, a protecting group or a -C=C- containing group.

3. The composition according to claim 2 wherein said non-reactive group is a  $C_1$ - $C_{12}$  alkyl group.

4. The composition according to claim 1 wherein said coupling agent is a compound according to the structure:



where R' is a C<sub>2</sub> to C<sub>12</sub>, preferably a C<sub>2</sub> to C<sub>8</sub> alkylene group, a cycloalkyl or cycloalkyl-containing group, an aryl or aryl-containing group, 4,4'-diphenylmethane, toluene, naphthalene, 4,4'-dicyclohexylmethane, cyclohexyl, 3,3'-dimethylphenyl, 3,3'-dimethyldiphenylmethane, 4,6'-xylylene, 3,5,5-trimethylcyclohexyl, 2,2,4-trimethylhexamethylene or p-phenylene.

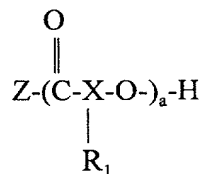
5. The composition according to claim 4 wherein said diblock is reacted with a crosslinking agent to produce a star polymer.

6. The composition according to claim 1 wherein said polyester comprises poly(hydroxy carboxylic acid).

7. The composition according to claim 1 wherein said polyester is obtained from polymerization of an aliphatic hydroxycarboxylic acid or ester selected from the group consisting of L-lactic acid, D,L-lactic acid, glycolic acid, L-lactide, D,L-lactide, glycolide, caprolactone or mixtures thereof.

8. The composition according to claim 1 wherein said composition further includes a bioactive agent.

9. A composition according to the structure:



where a is a positive integer,

X is a C<sub>1</sub>-C<sub>8</sub> alkylene group,

R<sub>1</sub> is H or CH<sub>3</sub>, and Z is derived from a monofunctional monomeric or polymeric compound end-capped with an amine or hydroxyl group or is derived from a compound end-capped with

an amine or hydroxyl group which also contains a blocking group or a -C=C- group, said compound being selected from an alkyl amine or alcohol, an aryl amine or alcohol, an aralkyl amine or alcohol or a substituted alkyl amine or alcohol, a substituted aryl amine or alcohol or a substituted aralkyl amine or alcohol.

10. The composition according to claim 9 wherein Z is represented by the structure  $M-(O-R-)_m-Y$

where m is a positive integer,

Y is O or NH,

R is a C<sub>2</sub> to C<sub>10</sub> alkylene group and

M is a non-reactive group or a group containing a blocking group or a -C=C- groups.

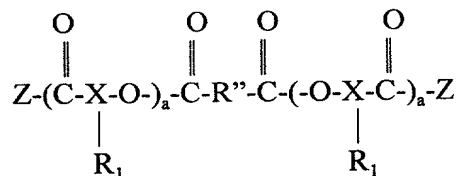
11. The composition according to claim 10, wherein M is selected from a C<sub>1</sub> to C<sub>12</sub> alkyl group, an aryl group, an aralkyl group or a substituted C<sub>1</sub> to C<sub>12</sub> alkyl group, aryl group, aralkyl group, a blocking group or a C=C containing group.

12. The composition according to claim 10 wherein X is a C<sub>1</sub> alkylene group.

13. The composition according to claim 10 wherein R<sub>1</sub> is H when X is a C<sub>2</sub>-C<sub>8</sub> alkylene group.

14. The composition according to claim 10 wherein said compound is a substituted or unsubstituted C<sub>1</sub> to C<sub>12</sub> alkyl amine or alcohol.

15. A composition according to the chemical structure:



where a is a positive integer,

Z is derived from an amine- or hydroxyl-containing monofunctional monomeric or polymeric compound end-capped with an amine or hydroxyl group or is derived from a compound end-capped with an amine or hydroxyl group which also contains a blocking group or a -C=C- group, said amine- or alcohol-containing compound being selected from an alkyl amine or alcohol, an aryl amine or alcohol, an aralkyl amine or alcohol or a substituted alkyl amine or alcohol, a substituted aryl amine or alcohol, or a substituted aralkyl amine or alcohol,

X is a C<sub>1</sub>-C<sub>8</sub> alkylene group,

R'' is a C<sub>0</sub> to C<sub>12</sub> alkylene group or a hydroxyl or carboxylic acid substituted alkyl group, a cycloalkyl, a hydroxyl-containing cycloalkyl, or cycloalkyl-containing group, an aryl or aryl-containing group, an oligoester or polyester, or a polyoxyalkylene chain-containing group, and R<sub>1</sub> is H or CH<sub>3</sub>.

16. The composition according to claim 15 wherein Z is represented by the structure



where m is a positive integer,

Y is O or NH,

R is a C<sub>2</sub> to C<sub>10</sub> alkylene group, and

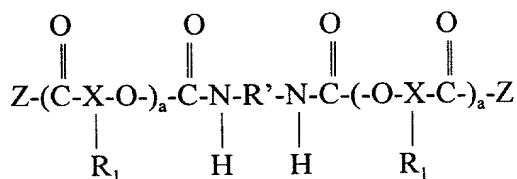
M is a non-reactive group or a group containing a blocking group or a -C=C- group.

17. The composition according to claim 16 wherein M is a C<sub>1</sub> to C<sub>12</sub> alkyl group, an aryl group, an aralkyl group or a substituted C<sub>1</sub> to C<sub>12</sub> alkyl group, an aryl group, an aralkyl group, a blocking group or a C=C containing group.

18. The composition according too claim 17 wherein M is methyl or ethyl.

19. The composition according to claim 15 wherein said poly(oxyalkylene) chain containing group is poly(ethylene oxide), poly(ethylene oxide)-co-poly(propylene oxide) or a poly(ethylene oxide) rich chain.

20. The composition according to claim 15 where  $R_1$  is H when X is a  $C_2$ - $C_8$  alkylene group.
21. The composition according to claim 15 wherein X is a  $C_1$  alkylene group.
22. The composition according to claim 15 wherein said amine- or alcohol-containing compound is a substituted or unsubstituted  $C_1$  to  $C_{12}$  alkyl amine or alcohol.
23. A polymeric composition according to the chemical structure:



where a is a positive integer,

Z is derived from an amine- or hydroxyl-containing monofunctional monomeric or polymeric compound end-capped with an amine or hydroxyl group or is derived from a compound end-capped with an amine or hydroxyl group which also contains a blocking group or a  $-\text{C}=\text{C}-$  group, said amine- or alcohol-containing compound being selected from an alkyl amine or alcohol, an aryl amine or alcohol, an aralkyl amine or alcohol or a substituted alkyl amine or alcohol, a substituted aryl amine or alcohol, or a substituted aralkyl amine or alcohol,

X is a  $C_1$ - $C_8$  alkylene group,

$R'$  is a  $C_2$  to  $C_{12}$  alkylene group, a cycloalkyl or cycloalkyl-containing group, an aryl or aryl-containing group, 4,4'-diphenylmethane, toluene, naphthalene, 4,4'-dicyclohexylmethane, cyclohexyl, 3,3'-dimethylphenyl, 3,3'-dimethyl-diphenylmethane, 4,6'-xylylene, 3,5,5-trimethylcyclohexyl, 2,2,4-trimethylhexamethylene or p-phenylene or a poly(ethylene oxide) containing or poly(ethylene oxide) rich chain and  $R_1$  is H or  $\text{CH}_3$

24. The composition according to claim 23 wherein Z is represented by the structure  $\text{M}-(\text{O}-\text{R})_m-\text{Y}-$  where m is a positive integer,

Y is O or NH,

R is a C<sub>2</sub> to C<sub>10</sub> alkylene group, and

M is a non-reactive group or a group containing a blocking group or a -C=C- group.

25. The composition according to claim 24 wherein M is a C<sub>1</sub> to C<sub>12</sub> alkyl group, an aryl group, an aralkyl group or a substituted C<sub>1</sub> to C<sub>12</sub> alkyl group, an aryl group, an aralkyl group, a blocking group or a C=C containing group.

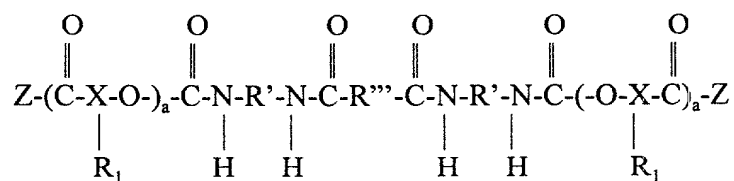
26. The composition according to claim 25 wherein M is methyl or ethyl.

27. The composition according to claim 24 where R<sub>1</sub> is H when X is a C<sub>2</sub>-C<sub>8</sub> alkylene group.

28. The composition according to claim 24 wherein X is a C<sub>1</sub> alkylene group.

29. The composition according to claim 24 wherein said amine- or alcohol-containing compound is a substituted or unsubstituted C<sub>1</sub> to C<sub>12</sub> alkyl amine or alcohol.

30. A polymeric composition according to the chemical structure:



where a is a positive integer,

Z is derived from an amine- or hydroxyl-containing monofunctional monomeric or polymeric compound end-capped with an amine or hydroxyl group or is derived from a compound end-capped with an amine or hydroxyl group which also contains a blocking group or a -C=C- group, said amine- or alcohol-containing compound being selected from an alkyl amine or alcohol, an aryl amine or alcohol, an aralkyl amine or alcohol or a substituted alkyl amine or

alcohol, a substituted aryl amine or alcohol, or a substituted aralkyl amine or alcohol,

X is a C<sub>1</sub>-C<sub>8</sub> alkylene group,

R' is a C<sub>2</sub> to C<sub>12</sub> alkylene group, a cycloalkyl or cycloalkyl-containing group, an aryl or aryl-containing group, 4,4'-diphenylmethane, toluene, naphthalene, 4,4'-dicyclohexylmethane, cyclohexyl, 3,3'-dimethylphenyl, 3,3'-dimethyl-diphenylmethane, 4,6'-xylylene, 3,5,5-trimethylcyclohexyl, 2,2,4-trimethylhexamethylene, p-phenylene or a poly(ethylene oxide) containing or poly(ethylene oxide) rich chain,

R''' is selected from or derived from the group consisting of a

diol, which generates urethane groups upon reaction with a diisocyanate,

a diamine, which generates urea groups upon reaction with a diisocyanate, or

a dicarboxylic acid which generates amide groups upon reaction with a diisocyanate,

said diol being selected from the group consisting of C<sub>2</sub> to C<sub>24</sub> diols, a poly(oxyalkylene) diol

compound of the structure -(O-R)<sub>m</sub>-O- where R is a C<sub>2</sub> to C<sub>10</sub> alkylene group and m is a

positive integer, poly(oxyalkylene)-rich diols, OH-terminated polyesters, oligoesters or an

ACA triblock, wherein in said ACA triblock, A is a polyester unit and C is selected from the

group consisting of a diol and a diamine,

said diamine being selected from the group consisting of C<sub>2</sub> to C<sub>24</sub> diamines, amino acids,

oligopeptides, proteins, enzymes, growth hormones, said dicarboxylic acid being selected

from the group consisting of C<sub>0</sub> to C<sub>24</sub> dicarboxylic acids, COOH-terminated

polycaprolactone, and COOH-terminated polyesters or oligoesters, and R<sub>1</sub> is H or CH<sub>3</sub>.

33. The composition according to claim 32 wherein Z is represented by the structure

M-(O-R)<sub>m</sub>-Y- where m is a positive integer,

Y is O or NH,

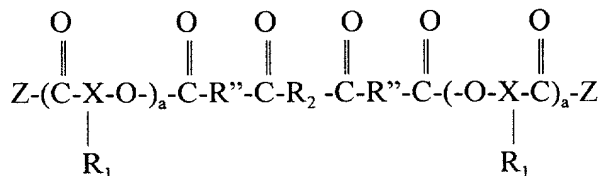
R is a C<sub>2</sub> to C<sub>10</sub> alkylene group, and

M is a non-reactive group or a group containing a blocking group or a -C=C- group.

34. The composition according to claim 33 wherein M is a C<sub>1</sub> to C<sub>12</sub> alkyl group, an aryl group, an aralkyl group or a substituted C<sub>1</sub> to C<sub>12</sub> alkyl group, an aryl group, an aralkyl group, a blocking group or a C=C containing group.

35. The composition according to claim 34 wherein M is methyl or ethyl.
36. The composition according to claim 32 where  $R_1$  is H when X is a  $C_2$ - $C_8$  alkylene group.
37. The composition according to claim 32 wherein X is a  $C_1$  alkylene group.
38. The composition according to claim 32 wherein said amine- or alcohol-containing compound is a substituted or unsubstituted  $C_1$  to  $C_{12}$  alkyl amine or alcohol.
39. The composition according to claim 32 wherein said diol is a  $C_2$  to  $C_{12}$  diol.
40. The composition according to claim 32 wherein R is ethylene or propylene.
41. The composition according to claim 32 wherein said diamine is a  $C_2$  to  $C_{12}$  diamine.
42. The composition according to claim 32 wherein said diamine is lysine or polylysine.
43. The composition according to claim 32 wherein said dicarboxylic acid is a  $C_2$  to  $C_{12}$  dicarboxylic acid.
44. The composition according to claim 32 wherein said dicarboxylic acid is a COOH-terminated polyester.
45. A composition comprising a polymer of the chemical structure:





where a is a positive integer,

Z is derived from an amine- or hydroxyl-containing monofunctional monomeric or polymeric compound end-capped with an amine or hydroxyl group or is derived from a compound end-capped with an amine or hydroxyl group which also contains a blocking group or a -C=C- group, said amine- or alcohol-containing compound being selected from an alkyl amine or alcohol, an aryl amine or alcohol, an aralkyl amine or alcohol or a substituted alkyl amine or alcohol, a substituted aryl amine or alcohol, or a substituted aralkyl amine or alcohol,

X is a C<sub>1</sub>-C<sub>8</sub> alkylene group

R<sub>1</sub> is a hydrogen or methyl group,

R'' is a C<sub>0</sub> to C<sub>12</sub> alkylene group or a hydroxyl or carboxylic acid substituted alkyl group, a cycloalkyl, a hydroxyl-containing cycloalkyl, or cycloalkyl-containing group, an aryl or aryl-containing group, a carboxyl-terminated oligoester or polyester, or a polyoxyalkylene chain-containing group preferably comprised of poly(ethylene oxide), poly(ethylene oxide)-co-poly(propylene oxide) or a poly(ethylene oxide) rich chain, and

R<sub>2</sub> is selected from or derived from the group consisting of a diol, which generates urethane groups upon reaction with a diisocyanate, a diamine, which generates urea groups upon reaction with a diisocyanate or a dicarboxylic acid which generates amide groups upon reaction with a diisocyanate, said diol preferably being selected from the group consisting of C<sub>2</sub> to C<sub>24</sub> diols, poly(oxyalkylene) diols of the structure -(O-R)<sub>m</sub>-O- where R is a C<sub>2</sub> to C<sub>10</sub> alkylene group and m is a positive integer, poly(oxyalkylene)-rich diols, OH-terminated polyesters, oligoesters or ACA triblocks, wherein in said ACA triblock, A is a polyester unit and C is selected from the group consisting of poly(ethylene oxide), poly(ethylene oxide)-co-poly(propylene oxide), a poly(ethylene oxide) rich chain, a diol and a diamine, said diamine being selected from the group consisting of C<sub>2</sub> to C<sub>24</sub> diamines, amino acids, and oligopeptides, proteins, enzymes and growth hormones,

said dicarboxylic acid being selected from the group consisting of C<sub>0</sub> to C<sub>24</sub> dicarboxylic acids

and COOH-terminated polyesters or oligoesters.

46. The composition according to claim 45 wherein Z is represented by the structure  $M-(O-R)_m-Y$  where m is a positive integer, Y is O or NH, R is a  $C_2$  to  $C_{10}$  alkylene group, and M is a non-reactive group or a group containing a blocking group or a  $-C=C-$  group.

47. The composition according to claim 46 wherein M is a  $C_1$  to  $C_{12}$  alkyl group, an aryl group, an aralkyl group or a substituted  $C_1$  to  $C_{12}$  alkyl group, an aryl group, an aralkyl group, a blocking group or a  $C=C$  containing group.

48. The composition according to claim 47 wherein M is methyl or ethyl.

49. The composition according to claim 45 where  $R_1$  is H when X is a  $C_2$ - $C_8$  alkylene group.

50. The composition according to claim 45 wherein X is a  $C_1$  alkylene group.

51. The composition according to claim 45 wherein said amine- or alcohol-containing compound is a substituted or unsubstituted  $C_1$  to  $C_{12}$  alkyl amine or alcohol.

52. The composition according to claim 45 wherein said diol is a  $C_2$  to  $C_{12}$  diol.

53. The composition according to claim 45 wherein R is ethylene or propylene.

54. The composition according to claim 45 wherein said diamine is a  $C_2$  to  $C_{12}$  diamine.

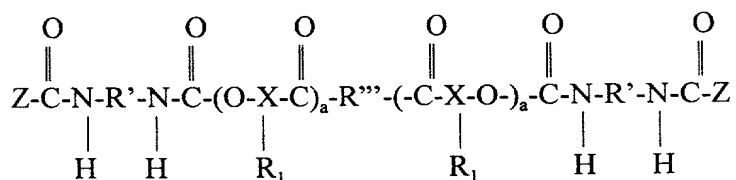
55. The composition according to claim 45 wherein said diamine is lysine or

polylysine.

56. The composition according to claim 45 wherein said dicarboxylic acid is a C<sub>2</sub> to C<sub>12</sub> dicarboxylic acid.

57. The composition according to claim 45 wherein said dicarboxylic acid is a COOH-terminated polyester.

58. A polymer composition of the chemical structure:



where a is a positive integer,

Z is derived from an amine- or hydroxyl-containing monofunctional monomeric or polymeric compound end-capped with an amine or hydroxyl group or is derived from a compound end-capped with an amine or hydroxyl group which also contains a blocking group or a -C=C- group, said amine- or alcohol-containing compound being selected from an alkyl amine or alcohol, an aryl amine or alcohol, an aralkyl amine or alcohol or a substituted alkyl amine or alcohol, a substituted aryl amine or alcohol, or a substituted aralkyl amine or alcohol,

X is a C<sub>1</sub>-C<sub>8</sub> alkylene group,

R' is a C<sub>2</sub> to C<sub>12</sub> alkylene group, a cycloalkyl or cycloalkyl-containing group, an aryl or aryl-containing group, 4,4'-diphenylmethane, toluene, naphthalene, 4,4'-dicyclohexylmethane, cyclohexyl, 3,3'-dimethylphenyl, 3,3'-dimethyl-diphenylmethane, 4,6'-xylylene, 3,5,5-trimethylcyclohexyl, 2,2,4-trimethylhexamethylene, p-phenylene or a poly(ethylene oxide) containing or poly(ethylene oxide) rich chain,

R''' is selected from or derived from the group consisting of a diol, which generates urethane groups upon reaction with a diisocyanate, a diamine, which generates urea groups upon reaction with a diisocyanate, or

a dicarboxylic acid which generates amide groups upon reaction with a diisocyanate, said diol being selected from the group consisting of  $C_2$  to  $C_{24}$  diols, a poly(oxyalkylene) diol compound of the structure  $-(O-R)_m-O-$  where R is a  $C_2$  to  $C_{10}$  alkylene group and m is a positive integer, poly(oxyalkylene)-rich diols, OH-terminated polyesters, oligoesters or an ACA triblock, wherein in said ACA triblock, A is a polyester unit and C is selected from the group consisting of a diol and a diamine, said diamine being selected from the group consisting of  $C_2$  to  $C_{24}$  diamines, amino acids, oligopeptides, proteins, enzymes, growth hormones, said dicarboxylic acid being selected from the group consisting of  $C_0$  to  $C_{24}$  dicarboxylic acids, COOH-terminated polycaprolactone, and COOH-terminated polyesters or oligoesters, and  $R_1$  is H or  $CH_3$ .

59. The composition according to claim 57 wherein Z is represented by the structure  $M-(O-R)_m-Y-$  where m is a positive integer, Y is O or NH, R is a  $C_2$  to  $C_{10}$  alkylene group, and M is a non-reactive group or a group containing a blocking group or a  $-C=C-$  group.

60. The composition according to claim 58 wherein M is a  $C_1$  to  $C_{12}$  alkyl group, an aryl group, an aralkyl group or a substituted  $C_1$  to  $C_{12}$  alkyl group, an aryl group, an aralkyl group, a blocking group or a  $C=C$  containing group.

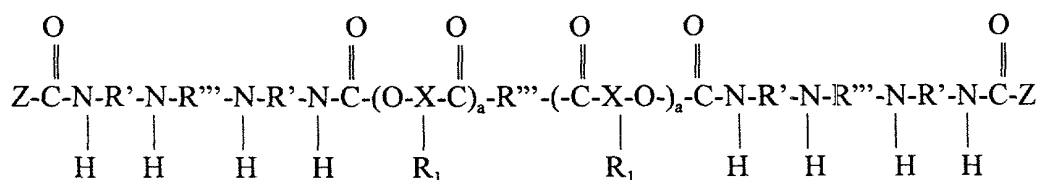
61. The composition according to claim 60 wherein M is methyl or ethyl.

62. The composition according to claim 57 where  $R_1$  is H when X is a  $C_2$ - $C_8$  alkylene group.

63. The composition according to claim 57 wherein X is a  $C_1$  alkylene group.

64. The composition according to claim 57 wherein said amine- or alcohol-containing compound is a substituted or unsubstituted  $C_1$  to  $C_{12}$  alkyl amine or alcohol.

65. The composition according to claim 57 wherein said diol is a C<sub>2</sub> to C<sub>12</sub> diol.
66. The composition according to claim 57 wherein R is ethylene or propylene.
67. The composition according to claim 57 wherein said diamine is a C<sub>2</sub> to C<sub>12</sub> diamine.
68. The composition according to claim 57 wherein said diamine is lysine or polylysine.
69. The composition according to claim 57 wherein said dicarboxylic acid is a C<sub>2</sub> to C<sub>12</sub> dicarboxylic acid.
70. The composition according to claim 57 wherein said dicarboxylic acid is a COOH-terminated polyester.
71. A composition of the chemical structure:



where a is a positive integer,

Z is derived from an amine- or hydroxyl-containing monofunctional monomeric or polymeric compound end-capped with an amine or hydroxyl group or is derived from a compound end-capped with an amine or hydroxyl group which also contains a blocking group or a -C=C- group, said amine- or alcohol-containing compound being selected from an alkyl amine or alcohol, an aryl amine or alcohol, an aralkyl amine or alcohol or a substituted alkyl amine or alcohol, a substituted aryl amine or alcohol, or a substituted aralkyl amine or alcohol,

X is a C<sub>1</sub>-C<sub>8</sub> alkylene group,

R' is a C<sub>2</sub> to C<sub>12</sub> alkylene group, a cycloalkyl or cycloalkyl-containing group, an aryl or aryl-containing group, 4,4'-diphenylmethane, toluene, naphthalene, 4,4'-dicyclohexylmethane, cyclohexyl, 3,3'-dimethylphenyl, 3,3'-dimethyl-diphenylmethane, 4,6'-xylylene, 3,5,5-trimethylcyclohexyl, 2,2,4-trimethylhexamethylene, p-phenylene or a poly(ethylene oxide) containing or poly(ethylene oxide) rich chain,

R''' is selected from or derived from the group consisting of a diol, which generates urethane groups upon reaction with a diisocyanate, a diamine, which generates urea groups upon reaction with a diisocyanate, or a dicarboxylic acid which generates amide groups upon reaction with a diisocyanate, said diol being selected from the group consisting of C<sub>2</sub> to C<sub>24</sub> diols, a poly(oxyalkylene) diol compound of the structure -(O-R)<sub>m</sub>-O- where R is a C<sub>2</sub> to C<sub>10</sub> alkylene group and m is a positive integer, poly(oxyalkylene)-rich diols, OH-terminated polyesters, oligoesters or an ACA triblock, wherein in said ACA triblock, A is a polyester unit and C is selected from the group consisting of a diol and a diamine, said diamine being selected from the group consisting of C<sub>2</sub> to C<sub>24</sub> diamines, amino acids, oligopeptides, proteins, enzymes, growth hormones, said dicarboxylic acid being selected from the group consisting of C<sub>0</sub> to C<sub>24</sub> dicarboxylic acids, COOH-terminated polycaprolactone, and COOH-terminated polyesters or oligoesters, and R<sub>1</sub> is H or CH<sub>3</sub>.

72. The composition according to claim 71 wherein Z is represented by the structure M-(O-R)<sub>m</sub>-Y- where m is a positive integer, Y is O or NH, R is a C<sub>2</sub> to C<sub>10</sub> alkylene group, and M is a non-reactive group or a group containing a blocking group or a -C=C- group.

73. The composition according to claim 72 wherein M is a C<sub>1</sub> to C<sub>12</sub> alkyl group, an aryl group, an aralkyl group or a substituted C<sub>1</sub> to C<sub>12</sub> alkyl group, an aryl group, an aralkyl group, a blocking group or a C=C containing group.

74. The composition according to claim 73 wherein M is methyl or ethyl.

75. The composition according to claim 71 where  $R_1$  is H when X is a  $C_2$ - $C_8$  alkylene group.

76. The composition according to claim 71 wherein X is a  $C_1$  alkylene group.

77. The composition according to claim 71 wherein said amine- or alcohol-containing compound is a substituted or unsubstituted  $C_1$  to  $C_{12}$  alkyl amine or alcohol.

78. The composition according to claim 71 wherein said diol is a  $C_2$  to  $C_{12}$  diol.

79. The composition according to claim 71 wherein R is ethylene or propylene.

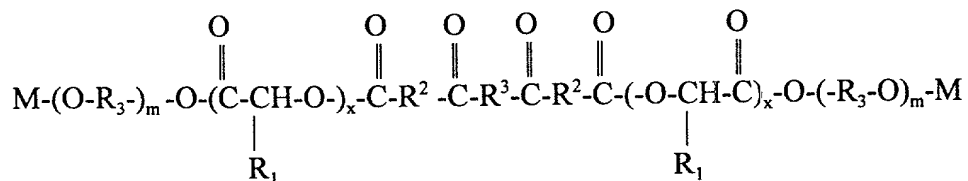
80. The composition according to claim 71 wherein said diamine is a  $C_2$  to  $C_{12}$  diamine.

81. The composition according to claim 71 wherein said diamine is lysine or polylysine.

82. The composition according to claim 71 wherein said dicarboxylic acid is a  $C_2$  to  $C_{12}$  dicarboxylic acid.

83. The composition according to claim 71 wherein said dicarboxylic acid is a COOH-terminated polyester.

84. A composition for use in reducing or preventing adhesions in a patient comprising a polymer of the chemical structure:



where m and x are positive integers,

$R_3$  is an ethylene or propylene group with the proviso that  $R_3$  is not exclusively a propylene group when  $R^2$  and  $R^3$  contain an absence of poly(ethylene oxide),  $R_1$  is a hydrogen or methyl group,  $R^2$  is a  $C_0$  to  $C_{12}$  alkylene group or a hydroxyl or carboxylic acid substituted alkyl group, a cycloalkyl, a hydroxyl-containing cycloalkyl, or cycloalkyl-containing group, an aryl or aryl-containing group, or a polyoxyalkylene chain-containing group comprised of poly(ethylene oxide), poly(ethylene oxide)-co-poly(propylene oxide) or a poly(ethylene oxide) rich chain,  $R^3$  is selected from the group consisting of poly(ethylene oxide), poly(ethylene oxide)-co-poly(propylene oxide), a poly(ethylene oxide)-rich chain, a diol, a diamine, a dicarboxylic acid and an ACA triblock, wherein A is a polyester unit and C is selected from the group consisting of poly(ethylene oxide), poly(ethylene oxide)-co-poly(propylene oxide), a poly(ethylene oxide)-rich chain, a diol, a diamine, and a dicarboxylic acid, and M is a non-reactive group, said polymeric composition having an EO/LA ratio which falls within the range of about 0.1 to about 100.

85. The composition according to claim 84 wherein said diol is selected from the group consisting of ethylene glycol, butanediol, OH-terminated polycaprolactone, poly(propylene glycol), OH-terminated polyester or oligoesters, said diamine is selected from the group consisting of ethylene diamine, hexamethylene diamine, amino acids, and oligopeptides and said dicarboxylic acid is selected from the group consisting of succinic acid, sebacic acid, adipic acid, malic acid, oxalic acid, maleic acid, fumaric acid, tartaric acid, COOH-terminated polycaprolactone, and COOH-terminated polyesters or oligoesters.

86. The composition according to claim 85 wherein said non-reactive group is a  $C_1$  to  $C_{12}$  alkyl group, an aryl group, an aralkyl group or a substituted  $C_1$  to  $C_{12}$  alkyl group, an aryl group, an aralkyl group or contains a blocking group or a  $-C=C-$  group.

87. The composition according to claim 86 where M is methyl or ethyl.

88. A method for reducing or preventing adhesions in a patient comprising exposing tissue which has been subjected to tissue damage and is at risk for the formation of adhesions to the polymer composition according to claim 84.